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NEW HAMPSHIRE COLLEGE

AGRICULTURAL EXPERIMENT STATION

EXPERIMENTS WITH

MUSKMELONS

BY F. WM. RANE

NEW HAMPSHIRE COLLEGE

OF

AGRICULTURE AND THE MECHANIC ARTS

DURHAM

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EXPERIMENTS WITH MUSKMELONS

BY FRANK WM. RANE

The experimental work with muskmelons has been continued since publishing the first report, New Hampshire Experiment Station Bulletin No. 52.

Next to the strawberry there has been no garden crop which the general public has shown more interest in.

Experiments with the following subjects have been conducted:

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EXPERIMENT NO. I

MONŒCIOUS *vs.* PERFECT FLOWERS

Among the interesting things found out in studying the muskmelon is that while we have considered this fruit to be monœcious, generally speaking, I find it is perfect. Out of ninety-three varieties examined the pistillate or female blossoms contained stamens and pollen in eighty-three. The remaining ten to all appearances were monœcious, and consist entirely of the larger varieties, viz., Nos. 3, 37, 43, 44, 54, 56, 60, 76, 82, and 87. For names see pages 31-33.

My attention was first called to the fact when examining the so-called pistillate flowers of the forcing house when planning an experiment in hand pollination and crossing.

The forcing house melons being in advance of those outside, the experiment began here. Upon examining the first pistillate flower, I was surprised to find what I took to be well-developed stamens.

Further examination with the other varieties in the house also pointed to a similar conclusion. Upon still further investigation with the microscope, I found that not only were they well developed but that these stamens were very prolific with pollen. On comparing them with those of the pistillate flowers, in each case coming from the same varieties, the pollen was equally as abundant.

Thinking this might be a freak due to the unusual conditions of the forcing house, or, second, a mistake as regards the purported facts, further examination was carried on as follows: In order to settle the first question, these same varieties were examined out of doors as they came into bloom and were found not to vary in the least.

Being further interested in the question, Mr. A. Z. Norcross, an advanced student, was delegated in the summer of 1898 to examine all of the varieties, which resulted in the data given above. Upon consultation into the literature upon the subject as far as I was able to go, the fact is not recognized. Gray's Manual of Botany, "The flowers are diœcious or monœcious";

FIG. 2.

Nicholson's Dictionary of Gardening, "The flowers are monœcious and are produced in the axis of the leaf stock, the males being far the most numerous of the two sexes"; Bailey's Forcing Book, "Melons are monœcious, that is, the sexes are borne in separate flowers on the same plant; the first flowers to open are always males or staminate and it may be two weeks after these blossoms appear that the females or pistillate begin to form."

In order to determine whether the pollen from these staminate flowers is fertile or prepotent, many flowers were covered just previous to opening and then pollinated with their own pollen, artificially, omitting some to see if they were capable of self-fertilization. We were successful in setting the fruit through the artificial means, although out of twenty-four blossoms covered but not hand pollinated no fruit set. This work has been carried on now for two seasons, and the present season fruit has been produced from the seed taken from the fruit which was fertilized with pollen produced in the so-called pistillate flower. To what extent the pollen of the pistillate flower is effective upon the fruit itself I am not prepared to state, but a close examination of the pistillate flower and the method of insect visitation leads me to think that the pistil, which is tri-lobed, is more easily self-fertile than otherwise. Further investigation is needed to determine various points. That the muskmelon is monœcious, however, needs some qualifications, and especially where the practical bearing comes is that the horticulturist in crossing these fruits should remember that the majority of our cultivated varieties, and practically all of the smaller sized varieties, contain perfect flowers.

EXPERIMENT NO. II

PICKING TIME

There seems to be no general rule for the best time to pick muskmelons equally applicable to all varieties. To allow them to ripen or turn yellow upon the vines usually results in a loss

of the fine flavor and desirable texture of the flesh. With most of the smaller or Gem type, and many of the medium class, as soon as the melon begins to ripen it cracks about the stem more or less. As soon as this takes place and the fruit comes off easily leaving the stem behind, the fruit should be gathered and put in a cool place or sent to market.

This cracking about the stem is very noticeable with some varieties from their excreting a few drops of bright red or salmon-colored juice.

In some of the larger varieties the stem does not separate from the fruit, or else when it does it leaves too large a hole in the rind. In such cases it is best to cut the stem leaving the lower portion attached to the fruit. Perhaps the most desirable method of telling when these larger melons are ripe is to watch carefully for the first signs of yellowing, which usually appear first in the middle portion of the fruit. As soon as these traces of yellow are seen they should be picked. The conditions of the weather have much to do with the fruit ripening. On hot days fruit ripens very quickly and it is often advisable to make two pickings, one early in the cool portion of the morning and again in the afternoon. An experienced person can usually tell by the general appearance and sense of smell of the fruit; even with the small Gem melons, with a little experience, one can pick out the ripe melons without looking at the characteristic separations about the stem end. With the dark-skinned varieties it is perhaps more difficult, but even here the general remarks already made apply equally well.

While on this subject we may also be asked, how is the consumer who purchases this fruit upon the market to know whether it is ripe or not? This question is not an easy one and somewhat problematical. With the small or Gem melons, they should not have been picked until the stem separates from them; hence if the stems are on they undoubtedly were picked green and are of doubtful value. It will be noticed, however, that many of the earlier of these fruits that come from the South to our northern markets do have their stems on and a portion of them may be fair flavored for that season of the

year; the way shown me by a large dealer as the best method of detecting the superior fruits is to select those stemless, as already described, or those from which the stem easily separates; then by smelling of the fruit at the stem end, the aroma present will indicate their value.

If none is detected, or a very slight one, the fruit will be of little value. In case the stem is already removed the same test is applied, but the fruit should be scraped with a knife or, more commonly, the thumb nail, where the stem was severed, and this aids in the detection of aroma and hence flavor. With the larger varieties the general appearance and sense of smell are perhaps the only index as to quality.

Each variety has its characteristics and the more one acquaints himself with them the better judgment he has as to picking time. A good muskmelon picked and marketed at the proper time usually is delicious, while if too green or allowed to over-ripen it becomes a rebuke to the melon trade.

EXPERIMENT NO. III

TRANSPLANTING PLANTS STARTED EARLY *vs.* SOWING SEED OUT OF DOORS

This experiment as planned and conducted was to determine the comparative yield of the two methods of growing muskmelons and to determine if the transplanted plants produce fruit enough earlier to compensate for the extra care necessarily given them.

A large plot was set aside for this experiment and the three varieties shown in Fig. 2 were used. These varieties are early and found to be very desirable in our markets. Two rows consisting of fourteen hills of the transplanted and one row planted with seeds were devoted to the No. 23 Rose Gem. A similar planting with two rows of the seed was made of the No. 80, Netted Gem, and with No. 85, True Jenny Lind, but one row was transplanted and two planted with seed.

The planting and transplanting was made out of doors, on June 1, the hills being similarly prepared. The transplanted plants were obtained by starting the seed in thumb pots and then transplanting into a four-inch pot, from these hardening off in a cold frame, then transplanting.

TABLE I.

Comparative yield of transplanted and seed sown in the hill for the whole season.

Method of planting.	Rose Gem. Average per hill.	Netted Gem. Average per hill.	True Jenny Lind. Average per hill.
Transplanted	13 1-2 fruit.	15 2-9 fruit.	10 1-2 fruit.
Seed	18 4-5 "	15 4-5 "	12 3 10 "
Average yield.....	16 1-8 fruit.	15 1-2 fruit.	11 2-5 fruit.

It will be seen that with each variety those hills planted with seed outyielded the others when the whole season's yield is considered.

TABLE II.

Comparative earliness of yield of transplanted and seed sown in hills to September 5th. Yield in each case from ten hills.

Number.	VARIETY.	Aug. 23.	Sept. 1.	Sept 2.	Sept. 5.	Total.	Gain.
23	Transplanted	2	5	11	12	30	18
23	Seed			3	9	12	.....
80	Transplanted			10	13	23	17
80	Seed			2	4	6	.....
85	Transplanted		2	6	2	10	1
85	Seed			3	6	9	.....

This table shows that the transplanted hills were earlier, and up to September 5 were in advance from point of yield.

From September 5 on, however, the planted hills outyielded, as is shown in Table I.

Whether this extra early yield will pay for the extra labor can only be determined by the conditions and facilities of the grower.

Generally speaking, it is doubtless a questionable undertaking, but in a few instances might be profitable.

The experiment in point of earliness shows but comparatively few fruits and but ten days in the extreme, and but a few days in the majority of cases, in favor of the transplanted plants.

EXPERIMENT NO. IV

PINCHED *vs.* UNPINCHED VINES

This experiment was planned and conducted to determine the value of pinching or heading-in the melon vines, as compared with allowing them to take their natural growth. The following table represents the plot used for this experiment. In row "B" the vines were nipped when they were three feet long and then the laterals were again nipped or pinched in, not allowing over one or two fruit to set on each.

In row "D" the main vine was pinched but no laterals; the others were allowed to take their natural growth.

TABLE III.

Results from Pinched and Unpinched Vines.

VARIETY.	A.		B.		C.		D.		E.		
	No.	Weight.	No.	Weight.	No.	Weight.	No.	Weight.	No.	Weight.	Hills.
Rose Gem	12	12.9	19	19 5	11	12.8	17	17.3	10	13.5	1
Rose Gem	11	13.4	15	17.5	9	10.8	16	18.5	15	15.4	2
Rose Gem	21	22.8	17	16.8	14	12.4	26	21.1	16	15 4	3
Netted Gem	20	18.2	*	*	10	11.1	13	15.0	15	18.3	4
Netted Gem	17	28.8	13	16.6	22	21.5	13	12.4	14	15.6	5
Netted Gem	19	21.8	22	20 3	10	14.8	7	9.4	21	20.0	6
True Jenny Lind	12	18.8	*	*	11	16.6	12	16.2	7	12.6	7
True Jenny Lind	20	22.7	14	17 2	12	14.9	7	9.2	11	12.1	8
True Jenny Lind	8	8.0	14	17.6	12	17.0	12	15.4	13	16.5	9
Netted Gem	18	13.6	11	11 3	15	13.6	11	9.4	18	15.1	10
Average per hill	15.8	18.1	15.6	17.1	12.6	14.5	13.4	14.4	14	15.5	

* Absent.

It will be noted that the experiment shows little if any gain. In fact, if the time required in executing the work be taken into consideration the experiment would indicate a loss: especially is this indicated in row "D." Row "B," where both the main vine and laterals were nipped, shows better returns, but even here the work necessitated is more than in row "D."

The conclusion points to there being little if any gain from pinching or heading-in the muskmelon when grown out of doors.

EXPERIMENT NO. V

REMOVING MALE BLOSSOMS

The fact that there is such an abundance of the staminate flowers and that they appear so long in advance of the pistillate or perfect ones lends an air of mystery as to their usefulness.

The following experiment was undertaken to see if by removing the staminate flowers any effect could be noticed in the production of fruit. Row "A," Table III, was selected for this experiment and the row was daily gone over, except in rainy weather, until August 18.

The exact number of flowers was not counted, but under ordinary conditions from 150 to 300 of these staminate flowers were picked daily from the ten hills. The results, as indicated in Table III, show that this row ("A") gave the largest yield both as to number and average weight of fruit. When we take into consideration the great amount of labor necessitated, however, it cannot be recommended as practical.

EXPERIMENT NO. VI

NEW FOREIGN VARIETY

We were fortunate in getting from the United States department of agriculture samples of muskmelon seeds from each of the new introductions included in "Inventory No. 1"; "Foreign Seeds and Plants."

Unfortunately the past season was extremely dry and many of the seeds did not germinate readily. Out of about one hundred that fruited, only one approached anything of special value. This variety was "Lida," No. 66 (The United States department number), from Moscow, Russia. Collected by Prof. Hansen, February, 1898.

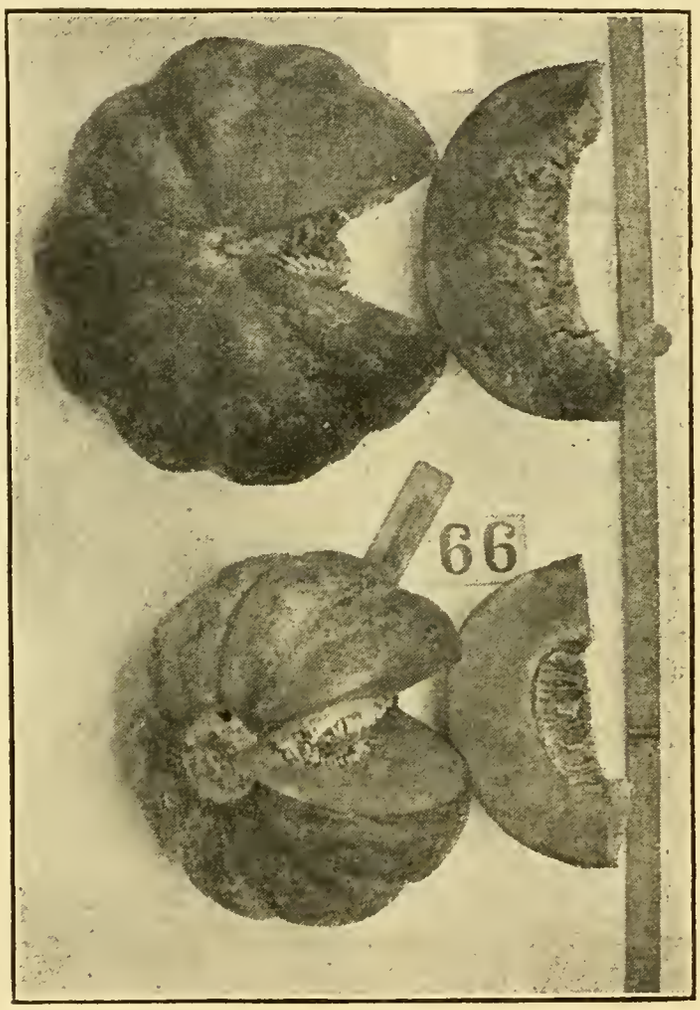

FIG. 3. VARIETY "LIDA" (Russian).

Figure 3 is a photograph of the fruit grown here at the station. The fruit is medium size, not netted, round to oval, strongly ribbed. The flesh is a deep salmon, rich, juicy, and delicate. Skin thin, flesh thick, small cavity. Matures in New Hampshire,—very promising.

FIG. 4. VARIETIES OF MUSKMELONS.

1. Apple-shaped Cantaloupe.
7. Cosmopolitan.
8. Netted Beauty.
9. Golden Gem.
15. Mango.
16. Emerald Gem.
27. New Hybrid.
50. Champion Market.
53. Chicago Nutmeg.
55. Irondequoit.

EXPERIMENT NO. VII

VARIETY TEST: MUSKMELONS IN THE NORTH

The results of two additional seasons with these same varieties together with the later introductions, make this the second report more complete. The first report, "New Hampshire Experiment Station Bulletin No. 52," contains figures and descriptions of all varieties numbering up to sixty, with the exception of illustrations of numbers 1, 7, 8, 9, 27, 50, 53, and 55. Figure 4 in this bulletin contains these missing numbers and also a correction of numbers 15 and 16. They should be as represented in Fig. 4 of this report.

The season of 1898 was ideal for all vines, the muskmelon included. The results from this season we believe can be depended upon to set forth the possibilities of the melon in the North. Melons that did not ripen in 1898 cannot be relied upon to mature in northern climates.

The general conditions of culture, etc., as outlined in Bulletin 52, were carried out with both crops. The land selected was a lightish clay loam, which had grown a crop of onions the previous year, and was therefore in good cultivation. A cultivated crop with a heavy application of barnyard manure preceded the onion crop, which was itself fertilized with a good dressing of commercial fertilizer. In the spring the plot was harrowed into a very mellow condition, marked out five by six feet, and each hill received a large shovelful of rich compost and a handful of bone meal. The hills were then thoroughly mixed with this plant food and planted June 1. There were at least two hills of each variety planted and ninety-five in all.

The hills were thinned to three plants each on July 12. Cultivation was kept up at frequent intervals until the plants covered the ground. During extremely dry times the melons were irrigated from the main college water system. Not much was gained, however, as a neighboring plot, under similar conditions but without water, was equally productive. The melon appears able to withstand drouth as well as almost any garden

crop. The plants were allowed to run at will until the ground was well covered, when on August 23 the vines were nipped back or headed-in sufficiently to allow picking of the fruit and general note-taking.

In 1898 the frost held off until September 23; in 1899, until September, and on the following days all the fruit was harvested and notes completed.

The striped squash beetle (*Diabrotica vittata*) was very numerous and troublesome. We found, however, that old slaked lime and gypsum were equally as valuable as tobacco dust in keeping them away. When they were very thick the young plants were completely dusted or coated with these substances. Even when tobacco dust is used it is necessary to watch the young plants closely and repeat the application whenever necessary. This trouble however does not last long, but for a week or so until the plants get a few true leaves, it must be attended to.

The specimens illustrating each variety, as shown in the figures, were picked September 12, thus giving each an opportunity to mature and be in prime condition. Each was selected as a type of its variety.

EXPLANATION OF TABLES IV AND V

In each case the figures represent the yield from two hills; where, as in a few instances, but one survived, the yield was doubled to make all varieties comparable. In the column headed "Date of ripening," the date recorded is that when the variety could be considered as beginning to ripen generally. In several cases one fruit of a variety ripened a week or so before any other. An asterisk has been used to indicate this fact. In Table V accurate measurements and general comparative data of all varieties grown are given.

For convenience to the reader, the full address of the various seedsmen are given in full:

Burpee, W. Atlee Burpee, Philadelphia, Pa.; J. & S., Johnston & Stokes, Philadelphia, Pa.; Breck, Joseph Breck & Sons, Boston, Mass.; Henderson, Peter Henderson & Co., New York

city; Livingston, The Livingston Seed Co., Columbus, Ohio; Gregory, J. J. Gregory & Sons, Marblehead, Mass.; Buckbee, H. W. Buckbee, Rockford, Ill.; Salzer, John A. Salzer Seed Co., La Crosse, Wis.; Ferry, D. M. Ferry & Co., Detroit, Mich.; Farquhar, R. & J. Farquhar & Co., Boston, Mass.; Dreer, Henry A. Dreer, Philadelphia, Pa.; May, L. L. May & Co., St. Paul, Minn.; Eastman, Eastman Seed Co., East Sumner, Me.; Landreth, David Landreth & Sons, Philadelphia, Pa.; W. & D., Weeber & Don, New York City; Vaughan, Vaughan's Seed store, Chicago, Ill.

TABLE IV.—COMPARISON OF VARIETIES OF MUSKMELONS

Yield calculated from two hills of each variety. Hills five by six feet apart.

Number.	VARIETY.	Date of ripening.	Number of fruit ripened.	Total weight of ripe fruit, in pounds.	Average weight of ripe fruit, in pounds.	Number of fruits not ripened.	Total weight of fruit not ripened.	Average number of ripe fruit per acre.	Seedsmen. (Full address on pages 29, 30.)
1	Apple-shaped Cantaloupe	.....	.....	.....	.....	18	16.0	.....	Burpee.
2	Triumph	.....	.....	.....	.....	12	11.7	.....	"
3	Extra Early Grand Rapids	*Sept. 8	8	34.0	4.5	5	20.6	5,808	"
4	Melrose	17	7	13.5	2.0	15	26.6	5,082	"
5	Cannon Ball	17	3	6.8	2.3	21	47.4	2,178	"
6	Green-fleshed Osage	15	3	5.7	1.9	27	52.8	2,178	J. & S.
7	Cosmopolitan	*15	5	17.9	3.6	9	33.5	3,630	Burpee.
8	Netted Beauty	22	6	7.9	1.2	18	38.7	4,356	J. & S.
9	Golden Gem	2	11	10.5	1.0	16	13.7	7,986	"
10	Captain	6	17	26.9	1.6	7	5.5	12,342	"
11	No. 88	6	17	14.5	0.8	8	6.6	12,342	"
12	Lone Star	.....	.....	.....	.....	8	27.3	.....	"
13	Miller's Cream Nutmeg	Sept. 22	6	24.6	4.1	11	28.5	4,356	"
14	Jersey Belle	*15	9	26.3	3.0	7	10.8	6,534	"
15	Mango	2	48	22.9	0.5	34	17.3	34,848	Breck.
16	Emerald Gem	10	20	38.8	1.9	6	53.0	14,520	"
17	Hackensack	*19	7	33.0	4.7	5	18.8	5,082	"
18	Newport	6	18	22.3	1.2	2	1.5	13,068	Henderson.
19	Perfected Delmonico	19	9	17.9	2.0	7	13.6	6,534	"
20	Banquet	17	6	11.6	2.0	20	35.9	4,356	"
21	Market	19	2	10.9	5.4	11	32.4	1,452	Livingston.
22	Tip-Top	19	4	12.1	3.0	16	47.2	2,904	"
23	Rose Gem	8	20	19.5	1.0	14	15.4	14,520	"
24	Sill's Hybrid	.....	.....	.....	.....	.....	.....	.....	Gregory.
25	Long Island Beauty	*Sept. 9	8	39.4	4.9	2	7.0	5,808	"

TABLE IV.— *Continued.*

Number.	VARIETY.	Date of ripening.	Number of fruit ripened.	Total weight of ripe fruit, in pounds.	Average weight of ripe fruit, in pounds.	Number of fruits not ripened.	Total weight of fruit not ripened.	Average number of ripe fruit per acre.	Seedsmen.
26	Six Oaks Cantaloupe	Sept. 15	11	32.0	3.0	9	22.8	7,986	Gregory.
27	New Hybrid	19	1	4.6	4.6	9	22.8	726	Buckbee.
28	Triumph	22	5	16.5	3.3	8	26.0	3,630	"
29	Earliest Ripe	9	15	17.2	1.1	8	5.1	10,890	Salzer.
30	Cosmopolitan	8	12	34.5	2.9	8	16.8	8,712	Ferry.
31	Ironclad	*15	7	22.2	3.1	12	22.0	5,082	Buckbee.
32	Satisfaction	8	14	44.0	3.1	5	7.1	10,164	Farquhar.
33	Jenny Lind	9	15	19.6	1.3	3	3.1	10,890	Dreer.
34	Columbus	17	4	17.0	4.2	5	18.8	2,904	"
35	Pineapple	9	10	24.1	2.4	8	10.2	7,260	May.
36	Seedling—Hybrid Nutmeg								Spalding.
37	Granite State	Sept. 2	7	37.9	5.6			5,082	Eastman.
38	Carmes	15	2	10.3	5.1	8	37.4	1,452	Henderson.
39	Shumway's Giant	*19	6	31.7	5.3	9	27.3	4,356	Gregory.
40	Montreal Nutmeg	22	7	34.9	5.0	5	19.1	5,082	"
41	Early Nutmeg	15	14	34.8	2.5	5	8.3	10,164	"
42	Osage	15	7	30.7	4.4	6	16.5	5,082	"
43	Bay View	*17	7	29 2	4.1	4	19.6	5,082	"
44	Delmonico	6	6	34.5	5.7	4	15.9	4,356	"
45	Extra Early Hackensack	9	13	44.7	3.4	3	4.4	9,438	"
46	New White Japan	6	19	39.9	2.1	3	2 4	13,794	"
47	Skillman's Fine Netted	10	11	24.1	2.2	6	10.5	7,986	"
48	Christiana	8	15	28.5	1.9	6	7.7	10,890	"
49	Extra Early Cantaloupe	Aug. 30	9	22.9	2.5	4	8.8	6,534	"
50	Champion Market	Sept. 8	7	21.1	3.0	5	14 6	5,082	"
51	Banana	22	4	14.0	3.5	5	9.5	2,904	"
52	Surprise	15	14	50.2	3.4	3	9.2	10,164	"
53	Chicago Nutmeg	9	10	49.4	5.0	4	10.2	7,260	"

54	Long Yellow	Sept.	8	11	83.9	7.6	1	1.5	7,986	Gregory.
55	Irondequoit		9	12	41.5	3.4	4	9.9	8,712	"
56	Casaba		15	8	28.9	3.6	6	20.4	5,808	"
57	Golden-Netted Gem		8	24	33.8	1.4	8	6.8	17,424	"
58	Bird Cantaloupe		9	11	31.9	2.9	9	10.1	7,986	Landreth.
59	Missouri		12	9	30.2	3.3	4	8.2	6,534	"
60	Large White French		22	2	14.5	7.0	9	41.9	1,452	"
61	Netted Nutmeg		15	8	21.0	2.6	5	24.4	5,808	"
62	Large Black Paris		*22	4	19.0	4.7	10	51 6	2,904	"
63	Anne Arundel		*14	13	39.3	3.0	5	15 2	9,438	"
64	Atlantic City		17	3	13.1	4.4	14	38.1	2,178	"
65	Improved Jenny		12	12	34.6	2.9	1	4.8	8,712	"
66	Acme		8	10	28.8	2.9	3	6.6	7,260	"
67	Citron		*19	10	39.8	4.0	4	11.0	7,260	"
68	Ward's Nectar		17	16	31.2	2.0	7	10.4	11,616	"
69	McCotter's Pride		24	1	4.6	4.6	12	55.3	726	Ferry.
70	Shippers' Delight		6	18	15.7	0.9	12	9 4	13,068	J. & S.
71	Togoodo						1	0.9		"
72	Ivy Gem	Sept.	12	12	46.3	3.9	13	21 7	8,712	"
73	Golden Eagle		*17	7	14.3	2 0	17	28.0	5,082	Burpee.
74	Arlington Nutmeg		12	8	37.0	4 6	3	10.9	5,808	Farquhar.
75	Honey Drop		19	6	20.6	3.4	10	22.2	4,356	"
76	Cassabah		*15	6	29.2	5.0	4	20 5	4,356	Dreer.
77	Blenheim's Orange		24	1	2.6	2.6	14	21 9	726	W. & D.
78	Hero of Lockinge						10	17.5		"
79	Conqueror of Europe	Sept.		2	2.8	1.4	14	27.3	1,452	"
80	Netted Gem		6	22	26.6	1.2	16	14.1	15,972	Burpee.
81	Queen of All		*15	11	38.1	3.4	7	26 5	7,986	Salzer.
82	Nectar of Angels		1	12	45.4	3.8	2	7.2	8,712	"
83	Buckbee No. 555						11	30.1		Buckbee.
84	Superior	Sept.	17	11	23.9	2.1	15	28 6	7,986	Vaughan.
85	True Jenny Lind		*8	15	20.1	1.3	6	5.3	10,890	"
86	Giant Chicago Market		17	8	28.2	3.5	7	21.5	5,808	"
87	Improved Cantaloupe	Aug.	30	8	48.7	6.1	4	11.9	5,808	"
88	Oval Netted Nutmeg	Sept.	8	25	36.5	1.4	14	13.6	18,154	"
89	Southern Beauty		12	4	16.8	4.2	8	23.8	2,904	"
90	Montreal Nutmeg						10	67.9		"
91	Princess						24	69.0		"
92	Perfection	Sept.	8	8	32.4	4.0	14	36.5	5,808	"
93	Paul Rose		8	20	37.9	1.9	32	32.7	14,520	"
94	Round Netted Gem		1	18	23.3	1.3	11	11.8	13,068	"
95	Kinsman Queen		9	24	65.1	2.7	8	16.8	17,424	Banning.

* One fruit ripened earlier.

TABLE V.—CHARACTERISTICS OF EACH VARIETY.

Number.	VARIETY.	Shape.	Color of flesh.	Ribbed.	Nettedness.	Flavor.	Thickness of rind, in inches.	Thickness of flesh, in inches.	Size of cavity, in inches.
1	Apple shaped Cantaloupe..	Apple	Yellow	Ribbed	Not			1	1½×1½
2	Triumph	Oblong	Salmon	Not	Gray	Extra sweet		1	6 ×3
3	Extra Early Grand Rapids.	"	Yellow	Shallow	Netted			1	5 ×3
4	Melrose	Round	Green	Not	Thickly	Gem type			3 ×3
5	Cannon Ball	"	"	Not	Netted				3 ×3
6	Green-fleshed Osage	Round to obl'g	"	Shallow	Slightly	Gem type			3 ×3
7	Cosmopolitan	Round	"	Not	Heavy				3 ×3
8	Netted Beauty	"	"	Not	Netted				3 ×3
9	Golden Gem	"	"	Not	"	Gem type			
10	Captain	Flattened	"	Shallow	"	"			2½×3½
11	No. 88	"	"	"	"	"			2 ×1½
12	Lone Star	Oblong	Yellow	Not	Slightly				
13	Miller's Cream Nutmeg	Round	"	Shallow	Netted				3 ×4
14	Jersey Belle	Flattened	Green	"	"	Gem type			2½×3½
15	Mango	Round	White	Not	Not	Acid			1 ×1½
16	Emerald Gem	"	Salmon	Not	Netted	Musky rich		1½	1½×2
17	Hackensack	Flattened	Green	Deep	Heavy				3½×4
18	Newport	Oblate	"	Shallow	Netted	Gem type			1½×2½
19	Perfected Delmonico	Round	Yellow	Not	"			1	2 ×2
20	Banquet	"	Rich yellow	Not	Heavy			1	3 ×2
21	Market	Flattened	Green	Deep	Netted	Good		1	4
22	Tip-Top	Round to obl'g	Yellow	Shallow	Slightly	"		1	2½×3½
23	Rose Gem	Round	Green	Very shallow	Netted	Gem type			2½×3½
24	Sill's Hybrid	"	Salmon	Medium	"				
25	Long Island Beauty	Flattened	White	Deep	Heavy			1	3 ×3½

26	Six Oaks Cantaloupe	Flattened	Yellow	Shallow	Netted			1	3 ×3
27	New Hybrid	Oblong	"	Not	Slightly			1	4 ×6
28	Triumph	"	Salmon	Not	"			1¼	3½×5½
29	Earliest Ripe	Flattened	Green	Shallow	Netted	Gem type			1½×2½
30	Cosmopolitan	Round	"	Not	Heavy	Very delicate			2½×3
31	Ironclad	Flattened	"	Shallow	Netted			1	3 ×3
32	Satisfaction	"	Yellow to salmon	"	Not				3½×3
33	Jenny Lind	"	Green	"	Netted	Gem type			
34	Columbus	Round	"	Not	"			1	4 ×5
35	Pineapple	Oval	"	Shallow	"				2½×3
36	Seedling—Hybrid Nutmeg								
37	Granite State	Elongated	Yellow to salmon	Deep	Netted	Good		1¼	2½×7
38	Carmes	Flattened	Salmon	"	"				
39	Shumway's Giant	"	Light salmon	Shallow	Not	Peculiar		1½	4 ×4
40	Montreal Nutmeg	Round	Green	Very shallow	Netted	Good		1	3½×4½
41	Early Nutmeg	Flattened	Light green	Shallow	"	Very sweet			2½×3
42	Osage	Oblong	Salmon	"	"	"		1	4 ×5
43	Bay View	"	Green	Deep	"				4½×8
44	Delmonico	Oval	Rich salmon	Shallow	Slightly			1	4½×6
45	Extra Early Hackensack	Flattened	Light green	Deep	Thickly	Musky			3 ×3
46	New White Japan	Round	"	Shallow	Slightly				3 ×3
47	Skillman's Fine Netted	"	Green	"	Thickly			1	4 ×4
48	Christiana	Flattened	Salmon	"	Netted	Very sweet		1	
49	Extra Early Cantaloupe	Oblong	Green	"	"	Gem type			3½×5
50	Champion Market	"	"	"	Thickly				3½×4
51	Banana	Banana	Yellow	Not	Not				2 ×14
52	Surprise	Flattened	Salmon	Deep	Slightly	Very sweet		1	3½×3½
53	Chicago Nutmeg	"	Green	Shallow	Coarse	Good		1	5 ×3½
54	Long Yellow	Elongated	Pale yellow	Deep	Netted	Fair early		1¼	9 ×3
55	Irondequoit	Flattened	Yellow	Shallow	Not	Sweet		1	4 ×5
56	Casaba	Oval	Green	"	Netted	"		1	4 ×5½
57	Golden-Netted Gem	"	"	Very shallow	"	Gem type			3 ×3
58	Bird Cantaloupe	"	"	Shallow	"				2 ×3
59	Missouri	Flattened	Light green	"	"	Sweet			2½×3½
60	Large White French	Oblong	Yellow to salmon	Deep	"			1½	4 ×8
61	Netted Nutmeg	Oval	Green	Shallow	"	Sweet		1	4 ×5
62	Large Black Paris	Oblong	"	Deep	Slightly			1	4½×7
63	Anne Arundel	Oblong to oval	"	Very shallow	Netted				2½×3½
64	Atlantic City	Oblong	"	Shallow	"				3½×5½
65	Improved Jenny	Flattened	"	"	"			1	3½×4½
66	Acme	Oval	"	Very shallow	"			1	3 ×4
67	Citron	Round	Salmon	Shallow	"	Good		1	3½×3½

TABLE V.— *Continued.*

Number.	VARIETY.	Shape.	Color of flesh.	Ribbed.	Nettedness.	Flavor.	Thickness of rind, in inches.	Thickness of flesh, in inches.	Size of cavity, in inches.
68	Ward's Nectar	Round	Green	Shallow	Netted				
69	McCotter's Pride	"	Salmon	"	"			1	× 3
70	Shippers' Delight	Flattened	Green	"	"				× 4
71	Togoodo	Oval	Green to yellow						
72	Ivy Gem	Flattened	Salmon	Shallow	Not	Sweet			
73	Golden Eagle	Round	Yellow to salmon	"	Netted	Good			×
74	Arlington Nutmeg	Flattened	Pale green	Deep	"			1	×
75	Honey Drop	Oblong	Yellow to salmon	Shallow	Not	Good		1	×
76	Cassabah	"	Green	"	Thickly				×
77	Blenheim's Orange	Round	Salmon	Not	"			1	×
78	Hero of Lockinge								
79	Conqueror of Europe	Round		Not	Netted				×
80	Netted Gem	Oval	Green	Shallow	"	Gem type			×
81	Queen of all	Oblong	Salmon	"	Slightly			1	
82	Nectar of Angels	Round	Pale yellow	"	Thinly	Good		1	× 4
83	No. 555	"	Yellow to green	Not	Netted				× 4
84	Superior	"	Green	Not	Thinly				×
85	True Jenny Lind	Flattened	"	Shallow	Netted	Gem type			×
86	Giant Chicago Market	Round	"	"	Coarse			1	×
87	Improved Cantaloupe	Long	Yellow	Deep	Netted			1	
88	Oval Netted Nutmeg	Oval	Green	Very shallow	"	Gem type			×
89	Southern Beauty	"	"	Shallow	"	Very sweet		1	× 5
90	Montreal Nutmeg	Flattened		Deep	"				
91	Princess	Oblong		Shallow	Thinly				
92	Perfection	Flattened	Pale yellow	Deep	Netted				× 4
93	Paul Rose	Oval	Salmon	Very shallow	"	Extra		1	×
94	Round Netted Gem	"	Green	Shallow	Coarse				×
95	Kinsman Queen	Flattened	Salmon	"	Not	Good			×

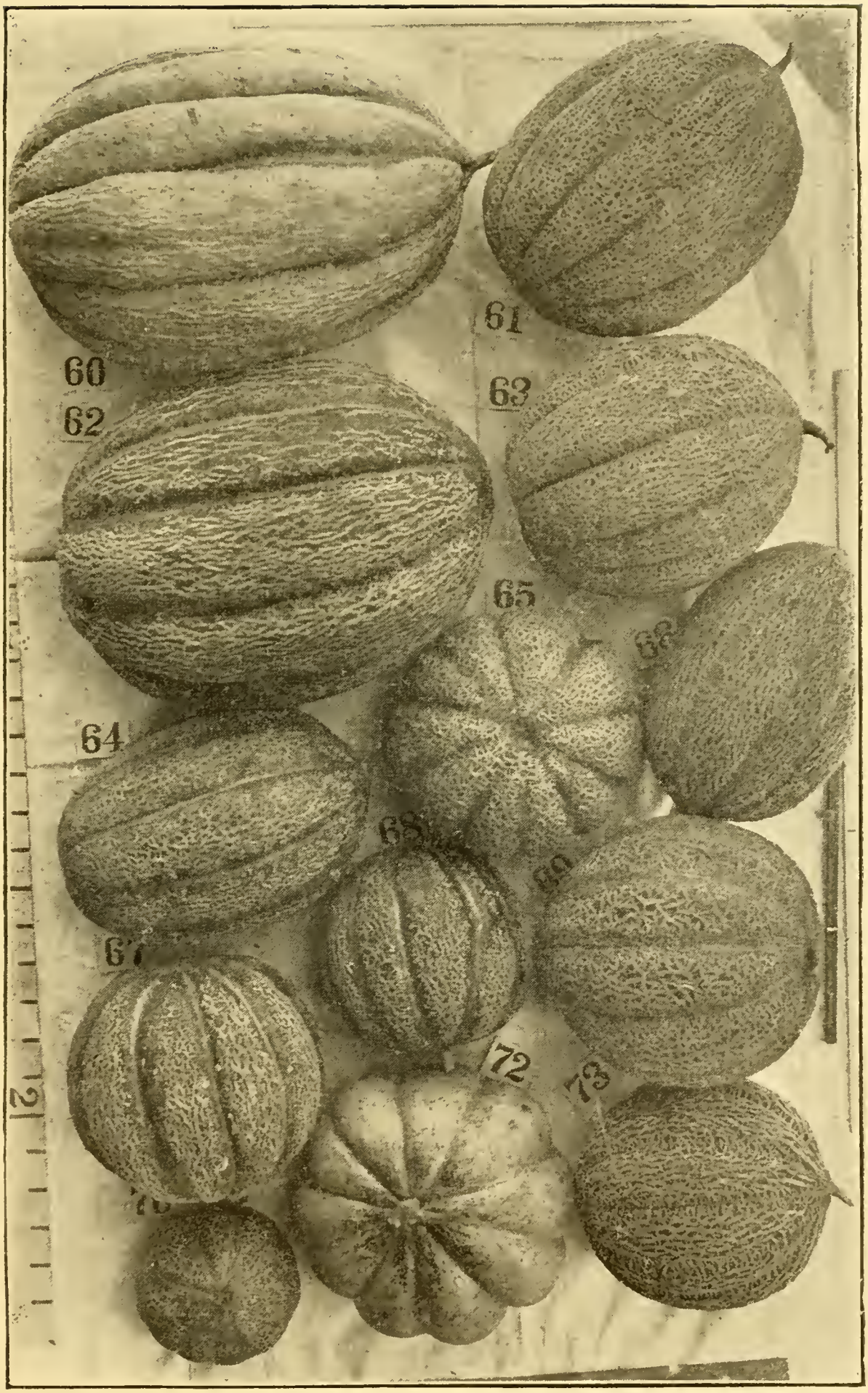

FIG. 5. VARIETIES OF MUSKMELONS.

60. Large White French.
61. Netted Nutmeg.
62. Large Black Paris.
63. Anne Arundel.
64. Atlantic City.
65. Improved Jenny.
66. Acme.
67. Citron.
68. Ward's Nectar.
69. McCotter's Pride.
70. Shipper's Delight.
72. Ivy Gem.
73. Golden Eagle.

NOTES ON VARIETIES

For general notes and illustrations upon varieties numbering from 1 to 60, consult Bulletin No. 52 of this station. A few illustrations were missed and are now given for the first time in Fig. 3, this bulletin. For exterior appearance of each of the following thirty-six varieties consult the photograph of each as shown in Figs. 5, 6, 7.

60. *Large White French* (Landreth). Oblong melon of large size, 7½ by 11½ inches. Color whitish green turning to yellow when ripe; flesh orange. Too late for the North.

61. *Netted Nutmeg* (Landreth). Round, fairly productive; dark green, ribbed, slightly netted, flavor sweet, regular in form, green flesh.

62. *Large Black Paris* (Landreth). Many vines and but few fruit. Ribbed and slightly netted, flesh green, size 8 by 12.

63. *Anne Arundel* (Landreth). Large melon, 6 by 8½ inches, ribs shallow, distinct, and heavily netted, flesh green.

64. *Atlantic City* (Landreth). Medium in size, pineapple in shape, 6 by 10 inches, dark background netted and ribbed. Flesh green, medium productiveness.

65. *Improved Jenny* (Landreth). A typical dark green Hackensack type. Fruit very uniform, 5½ inches in diameter, lightish green flesh of fair quality.

66. *Acme* (Landreth). Dark green, small, oblong, 4 by 5½ inches, peaked at stem end, flesh green, productive, ribbed and netted.

67. *Citron* (Landreth). Large, dark green, ribbed, partly netted and rest smooth, rather distorted, all sizes, productive, rather late, flesh salmon.

68. *Ward's Nectar* (Gregory). Dark, round, 5½ inches in diameter, ribbed, smooth and one half netted, fairly productive but few ripened, flesh green, Gem type.

69. *McCotter's Pride* (Ferry). Large vines, fruit irregular, roundish, dark green, ribbed, slightly netted, orange red flesh, not very productive and late this season.

70. *Shippers' Delight* (Johnson & Stokes). Vines small but productive, fruit 3½ by 3½ inches, each melon having a button on the blossom end, shape round, netted and ribbed, good quality, flesh green.

71. *Togoodo* (Johnson & Stokes). Good sized, light green, smooth melons, not sufficiently mature, plants strong, large leaf.

72. *Ivy Gem* (Johnson & Stokes). Medium size, yellow-fleshed sort, skin smooth to slightly netted, lightish in color, ribbed, globular in form, not very productive this season, good quality.

73. *Golden Eagle* (Burpee). Slightly elongated melon, 5½ by 6½ inches, peaked at tip, shallow ribbed, heavily netted, regular in shape.

74. *Arlington Nutmeg* (Farquhar). Good size, 8 by 8½ inches, round to flattened, deep ribbed, netted, flesh pale yellow.

75. *Honey Drop* (Farquhar). Dark green, smooth, ribbed, slightly elongated, 5½ by 6 inches, resembles osage somewhat, flesh yellow to salmon, good quality.

76. *Cassabah* (Dreer). Large, regular, long melon, 9 to 11 inches long by 5½ to 7 inches broad, heavily netted, ribbed, darkish in grooves, flesh green, a good melon.

77. *Blenheim* (Weeber & Don). Smooth, round, grayish melon, slightly flat, 4½ by 5 inches. The fruit checks as it ripens and the vines are thick and compact. Too late for out of doors.

78. *Hero of Lockinge* (Weeber & Don). Very late to mature, vines thick, double stem, fruit but partly grown, size 4½ by 6 inches. A forcing variety.

79. *Conqueror of Europe* (Weeber & Don). But two fruit of this variety matured. Fair size, 6 by 7 inches, elongated and dark green.

80. *Netted Gem* (Burpee). Small, gem type, oval, very shallow ribs, netted, green fleshed. Ripens early and is very productive.

81. *Queen of All* (Salzer). Oblong, shallow ribbed, netted, flesh salmon. Ripens rather late.

82. *Nectar of Angels* (Salzer). Good size, white melon, 7½ by 7½ inches, deep ribbed, lightly netted and has a tendency to check as it approaches ripening, yellow when ripe, flesh pale yellow, flavor not very sweet though good.

83. *No. 555* (Buckbee). A round, smooth, netted, dark green variety. Too late.

84. *Superior* (Vaughan). Small, round, 4 by 5 inches, dark green variety, fruit checks as it approaches ripening stage, no ribs, somewhat flattened, flesh green. Productive but late.

85. *True Jenny Lind* (Vaughan). Small, Gem type, flattened, shallow ribbed, netted. This variety in an adjoining plot ripened much earlier than in this test. Flesh green, fine flavor, prolific and early. A very desirable variety.

86. *Giant Chicago Market* (Vaughan). Medium sized, 6½ by 6½ inches, round, green flesh, shallow ribs, netted. Medium productive but rather late.

87. *Improved Cantaloupe* (Vaughan). Medium to large and long, 7½ by 12 inches, lightish color but dark green in grooves,

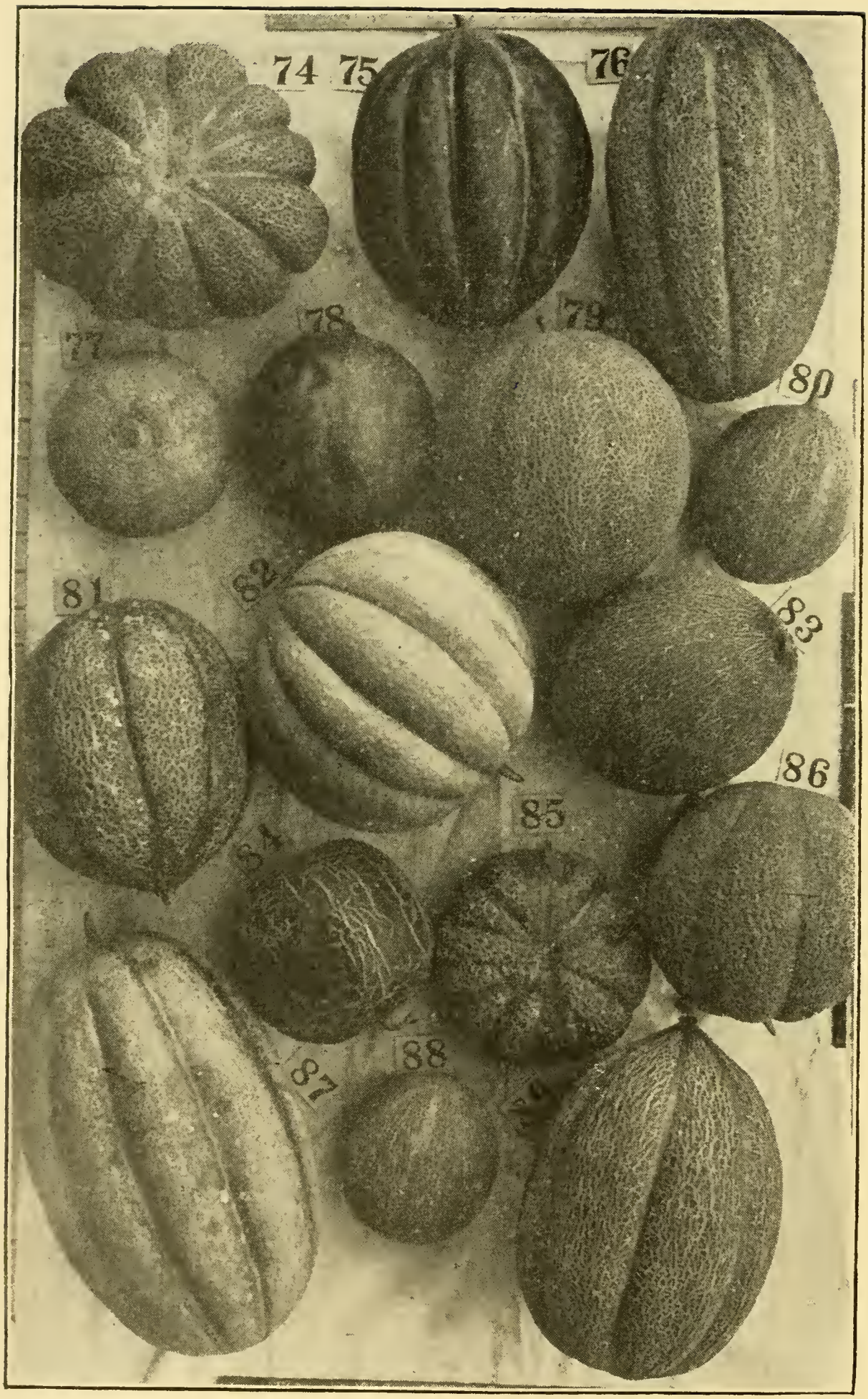

FIG. 6. VARIETIES OF MUSKMELONS.

74. Arlington Nutmeg.
75. Honey Drop.
76. Cassabah.
77. Blenheim's Orange.
78. Hero of Lockinge.
79. Conqueror of Europe.
80. Netted Gem.
81. Queen of All.
82. Nectar of Angels.
83. Buckbee No. 555.
84. Superior.
85. True Jenny Lind.
86. Giant Chicago Market.
87. Improved Cantaloupe.
88. Oval Netted Gem.
89. Southern Beauty.

deep ribbed and fruit tapers at ends, flavor much like Long Yellow (54), fairly prolific. Not as good as Granite State (37).

88. *Oval Netted Gem* (Vaughan). Small Gem type, oval, regular, 4 by 5 inches, elongated, very shallow ribs, netted. Prolific and desirable.

89. *Southern Beauty* (Vaughan). Elongated, 6½ by 8 inches, dark green, netted and shallow ribbed, good flavor, green flesh. Not very productive.

90. *Montreal Nutmeg* (Vaughan). Flat, 6½ by 8 inches, dark green, deep, large checks appear as fruit ripens, ribbed, netted. Too late.

91. *Princess* (Vaughan). Dark green, size 5½ by 8 inches, oblong, ribbed and thinly netted. Too late.

92. *Perfection* (Vaughan). Good size, 7 by 7 inches, round, Hackensack form and appearance only a darker green, fairly early, regular and productive, flesh pale yellow, deeply ribbed and netted.

93. *Paul Rose* (Vaughan). Small Gem type, oval, 4½ by 6 inches, salmon flesh, shallow ribbed and coarsely netted, extra flavor. Regular and productive.

94. *Round Netted Gem* (Vaughan). Small Gem type, oval, shallow ribs, coarse nettings, green flesh. Early and productive.

95. *Kinsman Queen* (Banning). Medium to large, flattened, deep ribbed, not netted, drab before ripe taking on a yellow tint as it ripens, flesh salmon, good flavor. Very productive and fairly early.

96. *Rocky Ford* (Henderson). Small Gem type, resembles Netted Gem type in every particular.

REJECTED LIST

The following list of thirty-two varieties are thought to be too late for general growing in the North. The basis for their rejection is on account of their not ripening at least four fruit on two hills before September 20.

1. Apple-shaped Cantaloupe.
2. Triumph.
4. Melrose.
5. Cannon Ball.
6. Green-Fleshed Osage.
8. Netted Beauty.
12. Lone Star.
13. Miller's Cream.
14. Jersey Belle.
19. Perfected Delmonico.
21. Market.
22. Tip Top.
27. New Hybrid.
28. Triumph.
34. Columbus.
38. Carmes.

FIG. 7. VARIETIES OF MUSKMELONS.

90. Montreal Nutmeg.
91. Princess.
92. Perfection.
93. Paul Rose.
94. Round Netted Gem.
95. Kinsman Queen.

39. Shumway's Giant.
43. Bay View.
51. Banana.
60. Large White French.
62. Large Black Paris.
64. Atlantic City.
69. McCotter's Pride.
71. Togoodo.
75. Honey Drop.
77. Blenheim's Orange.
78. Hero of Lockinge.
79. Conqueror of Europe.
83. Buckbee No. 555.
89. Southern Beauty.
90. Montreal Nutmeg.
91. The Princess.

The following varieties also are discarded for reasons indicated:

3. Extra Early Grand Rapids; cracks open badly.
11. No. 88, too small.
15. Mango; valuable only for pickles.
70. Shippers' Delight; very small.

CREAM OF THE VARIETIES FOR THE NORTH

The following list of muskmelons consisting of forty-two varieties is thought to contain those best suited for northern conditions. Each of these varieties has ripened at least one third or more of its total fruit (ripe and green) before September 20.

7. Cosmopolitan.
9. Golden Gem.
10. Captain.
16. Emerald Gem.
18. Newport.
23. Rose Gem.
25. Long Island Beauty.
29. Earliest Ripe.
30. Cosmopolitan.
32. Satisfaction.
33. Jenny Lind.
35. Pineapple.
37. Granite State.
41. Early Nutmeg.
44. Delmonico.
45. Extra Early Hackensack.
46. New White Japan.
47. Skillman's Fine Netted.
48. Christiana.
49. Extra Early Cantaloupe.
50. Champion Market.
52. Surprise.
53. Chicago Nutmeg.
54. Long Yellow.
56. Casaba.
58. Bird Cantaloupe.
59. Missouri.
63. Anne Arundel.
65. Improved Jenny.
66. Acme.
67. Citron.
68. Ward's Nectar.
74. Arlington Nutmeg
76. Cassabah.
80. Netted Gem.
81. Queen of All.
82. Nectar of Angels.
85. True Jenny Lind
87. Improved Cantaloupe.
88. Oval Netted Gem.
94. Round Netted Gem.
95. Kinsman Queen.

LIST OF BEST TO RECOMMEND FOR THE NORTH

Of the Gem type, try any of the following: No. 88, Oval Netted Gem; No. 57, Golden Netted Gem; No. 80, Netted Gem; No. 23, Rose Gem; No. 93, Paul Rose (yellow flesh); No. 16, Emerald Gem (yellow flesh).

Of the medium type, No. 45, Extra Early Hackensack; No. 95, Kinsman Queen; No. 32, Satisfaction; No. 53, Chicago Nutmeg; No. 65, Improved Jenny; No. 46, New White Japan; No. 82, Nectar of Angels; No. 49, Extra Early Cantaloupe; No. 66, Acme.

Of the large long type, No. 37, Granite State; No. 54, Long Yellow; No. 87, Improved Cantaloupe.